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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)	
)	
FWCC Request for Declaratory Ruling on)	
Partial-Band Licensing of Earth)	IB Docket No. 00-203
Stations in the Fixed-Satellite Service)	RM-9649
That Share Terrestrial Spectrum)	
)	
FWCC Petition for Rulemaking to Set)	
Loading Standards for Earth Stations)	
In the Fixed-Satellite Service that)	
Share Terrestrial Spectrum)	
)	
Onsat Petition for Declaratory Order that)	
Blanket Licensing Pursuant to Rule 25.115(c) Is)	SAT-PDR-19990910-00091
Available for Very Small Aperture Terminal)	
Satellite Network Operations at C-Band)	
)	
Onsat Petition for Waiver of Rule 25.212(d) to)	
the Extent Necessary to Permit Routine)	
Licensing of 3.7 Meter Transmit and Receive)	
Stations at C-Band)	
)	
<i>Ex parte</i> Letter Concerning Deployment of)	
Geostationary Orbit FSS Earth Stations in the)	
Shared Portion of the Ka-band)	

COMMENTS OF THE SATELLITE INDUSTRY ASSOCIATION, THE
SATELLITE BROADCASTING AND COMMUNICATIONS ASSOCIATION,
THE WORLD TELEPORT ASSOCIATION, AND THE AEROSPACE
INDUSTRIES ASSOCIATION OF AMERICA

January 8, 2001

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SUMMARY

The Satellite Industry Association, the Satellite Broadcasting and Communications Association, the World Teleport Association, and the Aeronautical Industries Association of America strongly oppose the radical changes in Commission policy regarding access to spectrum for satellite services that have been requested by the Fixed Wireless Communications Coalition (“FWCC”) and are now proposed, in modified form, in the *Notice*. The new rules suggested here would reverse long-standing policies in favor of flexibility for earth station operations and are completely inconsistent with the Commission’s recent history of streamlining application processes and deregulating satellite services. Furthermore, there is absolutely no evidence that the rule changes are needed. Therefore, the FWCC’s proposals should be rejected without further action. However, the Commission should adopt the Hughes proposal for streamlined licensing of Ka-band terminals.

The FWCC Petition simply should never have gotten to the Notice of Proposed Rulemaking stage. From the outset, the FWCC failed to satisfy its burden of justifying a change in the Commission’s rules. The Petition was met by a unanimous chorus of commenters opposing the FWCC’s suggestions, including a number of entities with strong interests in terrestrial fixed wireless operations. The opposing parties demonstrated in detail that the existing Commission policies being attacked by the FWCC were designed to ensure that both satellite services and terrestrial operations have reasonable access to shared spectrum and operate efficiently. Because of these policies, satellite services have expanded significantly

and today play a critical role in the nation's telecommunications infrastructure. The fixed wireless community also has grown and prospered under these policies.

The rule changes sought by the FWCC would impair, rather than promote, efficient spectrum use. Today, coordination of shared spectrum relies on the good faith and business judgment of earth station and terrestrial operators alike. The FWCC would have the Commission replace that system with a framework of complicated regulatory requirements that would unnecessarily burden earth station operators and the Commission staff, increasing the costs of satellite services for all users.

Under the new rules, an earth station operator that has denied coordination for a new proposed terrestrial link would be required to demonstrate past, current or imminent future use of the specific frequency requested. These rules would deprive satellite operators of the flexibility they need to respond to changing customer requirements; restore service in the event of a facility failure; make adjustments to facilitate coordination with adjacent satellites; launch replacement satellites that take advantage of technological advances; and manage overall network capacity efficiently. Future satellite needs for particular frequencies at particular locations cannot be predicted on an "imminent" basis.

The *Notice* provides no standards for evaluating a usage showing that would fairly take into account the many factors relevant to earth station spectrum requirements. Furthermore, the Commission ignores the substantial burden that would be placed on earth station operators, who would be required to track

historical usage on a frequency-specific basis and disclose sensitive business data to third parties.

The *Notice* also proposes that determinations regarding earth station usage be made by frequency coordinators, who lack the authority to interpret Commission policies and the expertise to evaluate the full range of issues involved. The likely result will be a significant number of disputed cases that must be resolved by the Commission, further burdening the Commission's limited resources.

The proposed rules would also change procedures relating to coordination in shared spectrum. First, a satellite or terrestrial operator that relied on a particular coordination model to site its station initially would be required to accept the use of the same model in future coordinations. There are several flaws with this proposal. At the outset, there is no evidence that a new regulation is needed to ensure that terrestrial and satellite operators use interference models consistently. In addition, the technical factors involved in a coordination can vary widely, even when the same two locations are involved. Thus, an interference model from one coordination may not be relevant to a later coordination if other factors are different. Finally, the rule fails to account appropriately for changes in the interference environment.

Second, the *Notice* proposes that if an operator accepted interference that would prevent that operator from achieving accepted interference objectives for a given channel, the operator would not be entitled to future protection on that frequency within the same set of technical parameters. Again, however, there is no evidence justifying adoption of this new policy. Furthermore, the *Notice* assumes

that there would be common agreement on what “accepted interference objectives” would be for any given earth station. In fact, however, the link budget of an earth station depends on a wide range of factors, and a level of interference that might be unacceptable for one operator could be acceptable for another. For this reason, attempting to come up with a “one size fits all” policy is an exercise in futility.

In short, the FWCC proposals clearly fail a basic cost-benefit analysis. They would restrict the flexibility of satellite operations in a way that is contrary to established Commission policies, and there is no evidence that the new rules would significantly benefit terrestrial operations.

Unlike the FWCC proposals, the rule changes suggested by Hughes to facilitate deployment of terminals in shared 18 GHz spectrum are in the public interest and should be adopted. The Hughes proposals would streamline licensing processes, reducing burdens on both applicants and the Commission, and speed the delivery of next-generation satellite services to end users.

TABLE OF CONTENTS

	<u>Page</u>
SUMMARY	I
BACKGROUND AND INTRODUCTION	3
I. THERE IS NO EVIDENCE TO SUPPORT THE LICENSING AND COORDINATION CHANGES PROPOSED BY THE FWCC	9
A. The Current Rules Support Satellite Operations that Are Critical to the Nation's Telecommunications Infrastructure	9
B. The Flexibility Built into Current Regulations Is Essential to Continued Efficient Provision of Satellite Services	12
C. The Record Contains No Evidence that Current Policies Unfairly Disadvantage Terrestrial Operators	17
D. The Commission Should Not Adopt Rules That Could Substantially Undermine the Viability of Next-Generation Broadband Satellite Systems	20
II. THE PROPOSED USE DEMONSTRATION REQUIREMENT IS IMPRACTICAL AND WOULD UNREASONABLY BURDEN SATELLITE SERVICES	23
A. Making a Fair Determination of Earth Station Use Requires Consideration of a Broad Range of Complex Factors	24
B. Demonstrating Use Would Impose Significant Burdens on Earth Station Operators and Require Disclosure of Highly Sensitive Business Information	29
C. The Proposed Rule Would Increase Burdens on Commission Personnel	31
D. The Proposal Would Unreasonably Constrain the Flexibility of Satellite Service Operations	33
E. Use Determinations Should Not Be Made by a Frequency Coordinator	34

F.	The Technical and Operational Characteristics of Ka-band and Higher Frequency Satellite Systems Preclude Application of Demonstrated Use Requirements	35
G.	Any Proposal for a Spectrum Efficiency Standard for Earth Stations Would Be Unworkable	39
III. THE PROPOSED CHANGES IN INTERFERENCE COORDINATION PROCEDURES ARE UNNECESSARY AND UNDULY REGULATORY		41
A.	The Commission Should Not Impose Requirements Regarding Interference Models	41
B.	The Commission Should Not Deny Future Protection to an Earth Station Operator that Has Agreed to Accept Limited Interference	45
IV. THE HUGHES PROPOSAL FOR BLANKET LICENSING OF 18 GHz TERMINALS IN SHARED SPECTRUM SHOULD BE ADOPTED		48
CONCLUSION		52

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INDUSTRIES ASSOCIATION OF AMERICA**

The Satellite Industry Association, the Satellite Broadcasting and Communications Association, the World Teleport Association, and the Aerospace Industries Association of America (collectively, the “Satellite Industry Coalition” or the “Coalition”) hereby submit comments in response to the *Notice of Proposed*

Rulemaking in the above-captioned proceeding, FCC 00-369 (rel. Oct. 24, 2000) (the “*Notice*”).

The associations that make up the Satellite Industry Coalition represent companies involved in every aspect of the delivery of satellite services, including space station and earth station operators, programmers, equipment manufacturers and launch service providers. We join here in providing these unprecedented joint industry comments because we believe the changes in satellite earth station licensing and coordination proposed by the Fixed Wireless Communications Coalition (“FWCC”) and reflected in the *Notice* are fundamentally misguided and could have devastating consequences for the satellite industry. The FWCC’s claim that current rules unfairly disadvantage terrestrial operators in spectrum that is shared on a co-primary basis between terrestrial and satellite services is completely unsupported. The FWCC’s proposals would impose extensive new regulatory requirements on satellite service licensees, and would make coordination more difficult and burdensome for terrestrial and satellite operators alike.

In short, the rule changes sought by the FWCC are unnecessary, intrusive, and inconsistent with the public interest. The Commission should reject them and terminate that portion of the proceeding.

The Coalition, however, supports the proposal of Hughes Network Systems (“Hughes”) for streamlined blanket licensing of terminals in shared 18 GHz spectrum.

BACKGROUND AND INTRODUCTION

The four associations that comprise the Coalition represent the full breadth of the satellite communications industry. The Satellite Industry Association (“SIA”) is a national trade association representing the leading U.S. satellite manufacturers, service providers, and launch service companies. The SIA serves as an advocate for the commercial satellite industry on regulatory and policy issues of common concern.¹ The Satellite Broadcasting and Communications Association (“SBCA”) is the national trade association representing the consumer satellite industry. The SBCA is committed to expanding the utilization of satellite technology for the broadcast delivery of video, data and voice services.² The World Teleport Association (“WTA”) is a nonprofit trade association of teleports (satellite uplink hubs), satellite and terrestrial carriers, technology providers, engineering firms, capital providers and consultants in twenty nations around the world.³ The

¹ The SIA’s corporate members include: Astrolink, The Boeing Company, Ellipso, Inc., Final Analysis, Inc., GE American Communications, Inc., Globalstar, Hughes Electronics Corp., Lockheed Martin Corporation, Loral Space & Communications, Motient Corp., Orbital Sciences Corp., PanAmSat Corporation, Teledesic, TRW Inc., and Williams Vyvx Services.

² The SBCA is composed of over 2,000 DBS and other satellite service providers, programmers, equipment manufacturers, distributors, retailers, encryption vendors, and national/regional distribution companies.

³ WTA’s corporate membership of 115 includes all of the leading North American operators of satellite uplinking facilities (Verestar, Globecast, Williams Vyvx, Lockheed Martin, Globecom Systems, Teleglobe Communications, BT Broadcast Services, Videocom, Triumph Communications, and others), as well as INTELSAT, PanAmSat, Telesat Canada, Satmex, GE Americom, Qwest Communications, Verizon, Lucent Technologies, Cisco Systems, Scientific-Atlanta, and Nortel. For these members, WTA is the global body that promotes their

Aerospace Industries Association (“AIA”) of America is the premier trade association representing the nation’s manufacturers of commercial, military, and business aircraft, helicopters, aircraft engines, missiles, spacecraft, materials, and related components and equipment.⁴

The Coalition’s members have a strong interest in the spectrum at issue in this proceeding. Satellite service operators and customers rely heavily today on spectrum that is shared with terrestrial systems at C-band and in the extended Ku-band, and demand for satellite services in the Ka-band is projected to be high as well. Spectrum sharing already places a significant burden on the

interests, researches their market, feeds them sales leads from around the world, and connects them to strategic allies.

⁴ AIA’s 65 corporate members include: AAI Corporation, The Aerostructures Corporation, Alcoa Industrial Components, Alliant Techsystems, Inc., American Pacific Corp., Analytical Graphics Inc., Argo-Tech Corp., Aviall, Inc., BAE SYSTEMS North America Inc., Ball Aerospace & Technologies Corp., Barnes Aerospace, The BFGoodrich Company, Aerostructures Landing Systems Maintenance, Repair and Overhaul Sensors and Integrated Systems, B.H. Aircraft Company, Inc., The Boeing Company, Curtiss-Wright Corp., Davis Tool, Inc., Dowty Aerospace, DRS Technologies, Inc., Ducommun Inc., DuPont Co., Esterline Technologies, Fairchild Dornier Corp., Fairchild Fasteners, Final Analysis, Inc., GenCorp, General Dynamics Corp., General Electric, Genuity Solutions Inc., GKN Aerospace Inc., Groen Brothers Aviation, Inc., Harris Corporation, HEICO Corp., Hexcel Corporation, Honeywell, Hughes Electronics Corp., Interturbine Corp., ITT Industries, Kaman Aerospace Corp., Kistler Aerospace Corp., Litton Industries, Inc., Lockheed Martin Corp., MD Helicopters, Inc., MOOG Inc., The NORDAM Group, Northrop Grumman Corp., Omega Air, Inc., Parker Hannifin Corp., Raytheon Co., Robinson Helicopter Company, Inc., Rockwell Collins, Inc., Rolls-Royce North America Inc., Senior Flexonics Inc., Space Access, LLC, Spectrum Astro, Inc., Stellex Aerostructures, Inc., Swales Aerospace, Teledyne Technologies Inc., Teleflex Inc./TFX Sermatech, Mal Tool & Engineering, Textron, Inc., Triumph Controls, Inc., TRW Inc., United Technologies, Pratt & Whitney, Sikorsky, Hamilton, Sundstrand, Vought Aircraft Industries, Inc., and Woodward Governor Co.

availability of core spectrum for satellite operations, limiting where and how new or modified facilities can be developed in response to customer demand. The difficulties of sharing spectrum between satellite and terrestrial services have increasingly led the Commission to rely on segmentation of spectrum for satellite and terrestrial uses in recent band plans.⁵ In the bands at issue here, however, sharing of spectrum is and will continue to be a fact of life for both the satellite and terrestrial industries.

In its Petition,⁶ the FWCC claimed that current Commission policies favor satellite services at the expense of fixed service operations in shared spectrum. The FWCC therefore sought radical changes in Commission rules regarding licensing and coordination of earth station operations in shared bands. The *Notice* wisely rejects the most extreme of the FWCC's suggested rule modifications, but proposes to adopt some rule changes in response to the arguments made by the FWCC.

As discussed in more detail below, there are two fundamental problems with the FWCC proposals reflected in the *Notice*. First, they represent a solution in search of a problem. An examination of the record that was developed in response to the FWCC Petition reveals absolutely no concrete evidence that fixed

⁵ See, e.g., *Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.3-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Broadcast Satellite-Service Use*, 15 FCC Rcd 13430, 13438-39 (2000).

⁶ Request for Declaratory Ruling and Petition for Rule Making of the Fixed Wireless Communications Coalition, May 5, 1999 ("FWCC Petition").

service licensees are being unfairly excluded from operations in shared spectrum. Not a single fixed service provider filed in support of the FWCC Petition to supply evidence of the claims of inequity made by the FWCC. Instead, the Petition was met with substantial opposition from every service provider that filed,⁷ including a number of companies who rely on both satellite and terrestrial services and thus have a clear interest in seeing that the rules treat each type of operation fairly.⁸

Thus, the most puzzling thing about the *Notice* is the fact that it exists at all, given the complete absence of any proof of circumstances justifying a change in the rules. Rather than supporting the Petition, the record to date clearly demonstrates that existing licensing and coordination procedures are rationally designed to reflect the basic differences in the way terrestrial and satellite services operate and to promote efficient spectrum use by each service.

Second, the *Notice* is problematic because the proposed solutions put forward to address FWCC's allegations are unduly intrusive and burdensome and would threaten the satellite industry's ability to provide reliable and effective service to users. In particular, the proposals would unreasonably limit the flexibility needed for satellite systems to respond rapidly when emergencies arise; to adapt when equipment fails; to satisfy the ever-changing needs of satellite

⁷ Another fixed wireless industry group, the Fixed Point-to-Point Communications Section of the Wireless Communications Division of the Telecommunications Industry Association, made the only filing in support of the FWCC Petition. See *Notice* at Appendix A.

⁸ See, e.g., Opposition of Sprint Corporation, Reply and Opposition of MCI WorldCom, Inc.; Reply Comments of ATC Teleports, Inc.

customers; to implement operator-to-operator coordination agreements; and to institute advances in the state of the art. Furthermore, the rule changes would also impose substantial administrative burdens and potentially require earth station operators to disclose competitively sensitive information. Decision-making authority in some instances would be placed in the hands of frequency coordinators who lack the qualifications to be engaged in adjudicative functions requiring interpretation of Commission policies.

Under existing policies, coordination in shared spectrum is a give and take process in which reasonable technical analysis and compromise are the rule, rather than the exception. The changes proposed here would fundamentally alter the nature of the coordination process by attempting to impose rigid one-size-fits-all requirements that are ill-suited to addressing the wide range of factual circumstances and technical parameters present in each individual coordination attempt. Every coordination is different, and current rules sensibly leave it to the parties themselves to evaluate the business, technical, and other issues that must be weighed. The proposals here would sacrifice that proven approach in exchange for a raft of new rules that would burden both satellite and terrestrial operators without evidence that any party will be better off. This represents a complete turn-around from the Commission's trend of deregulating satellite operations.⁹

⁹ In fact, the *Notice* acknowledges that the proposed rule changes sought by the FWCC "appear to be inconsistent with the Commission's general trend towards less intrusive regulation of the manner in which licensees use spectrum." *Notice* at ¶ 61. The Commission suggests that the changes are nevertheless appropriate spectrum

Instead of increasing the efficiency of spectrum use, the *Notice's* proposed rules would impair the ability of satellite users to manage their networks efficiently, putting at risk the multi-billion dollar investment in satellite space station and ground segment facilities.¹⁰ The *Notice*, moreover, overlooks the inherent differences between the satellite and terrestrial services. The fixed service has low start up costs, short times associated with construction and implementation of a system, and ease of access allowing rapid and inexpensive repair or replacement of a damaged system. Fixed-satellite service earth stations, on the other hand, are inextricably linked with FSS satellites, which have large start up costs, long times associated with construction and implementation of a system, and experience large barriers to the repair or replacement of a damaged system. Therefore, "equality of spectrum efficiency obligations", which is what this *Notice* attempts to achieve, is not the same thing as "efficient use of shared bandwidth," which is the Commission's larger goal. In short, the FWCC proposals contained in the *Notice* clearly fail to satisfy the most elemental cost-benefit analysis and should be rejected.

In contrast to the rule changes sought by the FWCC, the Hughes proposal for blanket licensing of 18 GHz terminals in spectrum shared with terrestrial operations will promote efficient use of spectrum and expedite delivery of

management methods. *Id.* However, as discussed herein, these rules would impede, not promote, efficient spectrum management.

¹⁰ Futron Corporation has estimated that the value of C- and Ku-band satellites serving all or a part of the United States is \$7.5 billion.

services to the public. Implementation of streamlined licensing procedures will reduce administrative costs for both applicants and the Commission, facilitating deployment of state-of-the-art technology.

I. THERE IS NO EVIDENCE TO SUPPORT THE LICENSING AND COORDINATION CHANGES PROPOSED BY THE FWCC

A. The Current Rules Support Satellite Operations that Are Critical to the Nation's Telecommunications Infrastructure

Under existing licensing and coordination rules, satellite service has developed into an essential part of the overall telecommunications infrastructure, supporting a wide range of industries. As the commercial satellite industry has developed, the fixed wireless industry has grown and prospered. Today, C- and Ku-band satellite operations provide video and data transmission nationwide. In addition, the satellite industry plays an important role in the delivery of services that also rely on other technologies, including international telephone trunking, Internet, paging, cable television, and broadcast services.

In fact, an analysis by Futron has shown that satellite services contribute to industries that generate more than *\$1.7 trillion dollars in the United States alone*. See "Industries Enabled by the Space Sector," attached as Exhibit 1. The study notes that almost 3 billion minutes of international telephone traffic are carried over satellite, and in many countries satellite facilities are used to provide a domestic telephone backbone. *Id.* In addition, virtually all broadcast and cable television content is sent via satellite to local affiliates and cable service providers. Satellite services also play an increasing role in the delivery of content as a part of

the Internet infrastructure, supporting e-commerce both domestically and abroad. The global financial services industry relies heavily on satellite facilities for real-time international transactions. Significantly, satellites are also bringing broadband and other telecommunications services to Indian reservations that the terrestrial segment of the information superhighway had bypassed.¹¹

Today's services are only part of the picture. Coming Ka-band services will provide broadband access to all Americans. In fact, the Commission has repeatedly recognized that Ka-band satellite operations may represent the most efficient and economical way to ensure that rural users and urban consumers alike receive access to advanced communications services.¹²

Satellite services also provide critical public safety functions. For example, satellite technology supports the healthcare industry in a number of ways. Satellite-based telemedicine supports the transfer of medical images and information to facilitate diagnosis and treatment. This capability is particularly valuable where other advanced telecommunications infrastructure facilities are lacking, such as rural areas or areas that have been affected by a natural disaster. Wide-area paging for on-call doctors and nurses also relies on satellite coverage, and

¹¹ See "Dishing Up a New Link to the Internet," The Washington Post, Nov. 6, 2000 at A1.

¹² See, e.g., *Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Service, Third Report and Order*, 12 FCC Rcd 22310 (1997).

VSAT networks connecting pharmacies to a central database facilitate the dispensing of prescription drugs and allow pharmacists to check for potentially harmful drug interactions.

In addition, satellites enable the delivery of news information in response to natural disasters or other emergencies. Current rules permit streamlined coordination of transportable earth stations, allowing rapid implementation of additional services to areas hit by storms or other weather emergencies. This enables the delivery of much-needed information both within the affected area and throughout the country. Earth stations also can be deployed temporarily to cover political conventions, elections, sports events, or any other story, from the birth of septuplets to the latest “trial of the century.” Broadcast and cable news operations rely heavily on satellite facilities to supplement other communications links to provide live coverage of these kinds of fast breaking and short-term news events.

The characteristics of satellite systems and current licensing policies combine to ensure that satellites can play these important roles. First, satellite technology is distance insensitive, allowing service to urban and rural areas alike at similar costs. As a result, satellite networks are ideally suited for services that rely on broad coverage and the ability to add new points of communications without putting in place substantial new infrastructure.

Second, satellite systems use spectrum extremely efficiently. A single GSO satellite can serve the continental United States; three GSO satellites can

cover the world; and Commission spacing and technical policies have maximized use of the spectrum/orbital resource. Full frequency re-use is required and recent innovations such as the use of spot beam technology have increased further the ability of space stations to re-use spectrum. The *Notice* describes in detail the extent to which Commission technical rules promote efficiency and facilitate coordination with terrestrial services in shared spectrum. *See Notice* at ¶ 39 & n.71.

Furthermore, the cost characteristics of satellite systems also contribute to efficient use of the systems. A GSO space station represents a huge sunk investment, with typical costs for construction and launch of \$200-\$300 million. Transponder rates must be set to recover these costs. As a result, customers have a strong economic incentive to optimize traffic loading.

Finally, satellite services play a critical role even when they are not used actively. Satellite systems provide redundancy for other telecommunications equipment, allowing wireline and terrestrial wireless services to be used more efficiently. The availability of satellite service as a back-up to other systems provides public interest benefits by increasing the overall reliability of our national telecommunications infrastructure.

B. The Flexibility Built into Current Regulations Is Essential to Continued Efficient Provision of Satellite Services

Current licensing and coordination rules reflect the Commission's acknowledgement that flexibility is necessary to ensure continued efficient operation of satellite systems. As the *Notice* recognizes, the ability to change

frequencies within a band permits earth station operators to respond rapidly to changes in system capabilities or customer demand. *Id.* at ¶ 40. Licensing earth stations across the full band provides “earth station licensees the needed flexibility to change transponders or satellites on short notice, and without having to be re-licensed by the Commission, to meet changing operational requirements.” *Id.* Commission policies give “earth station operators the ability to conform to the constraints placed on the satellite operators and the flexibility to change channels to access available transponder capacity within a satellite network and available capacity on other satellite networks.” *Id.*

In this regard, the *Notice* simply reaffirms the policy framework on which co-primary sharing between satellite services and terrestrial networks was based. As the Commission noted in 1978, “coordination for the entire frequency band and visible arc is our general earth station licensing objective in order to protect our flexibility and that of the satellite operator to change satellite locations and transponder use assignments to best satisfy overall domestic satellite service requirements.”¹³ The Commission warned the applicant in that instance, which had accepted limitations on its frequencies in order to accommodate terrestrial facilities, that the Commission “will not allow restrictions on earth station frequency use resulting from limited terrestrial coordination to restrict the operational flexibility of domestic satellites.” *Id.*

¹³ *American Satellite Corporation*, 72 FCC2d 750, 754 (1978).

This requirement for flexibility is inherent in the nature of satellite services, and clearly justifies differences between the regulation of satellite and terrestrial services. The need for flexibility begins before a new satellite even becomes operational. Prior to commencement of commercial services, coordination with adjacent satellite licensees must take place. The outcome of the coordination will determine what frequency assignments are available for certain types of services. Until initial coordination is completed, a satellite operator cannot determine what channels customers who have committed to purchasing capacity can use. Later, changes may need to be made to accommodate shifts in customer requirements or coordination with new adjacent spacecraft.

Furthermore, unlike terrestrial facilities, a satellite generally cannot be repaired if it experiences partial or complete failure. As a result, restoring service in the event of a failure requires the ability to shift to an operational transponder or another satellite.

To guard against the possibility of service outages, many customers purchase “protected” service. This level of service ensures that if the customer’s primary facility becomes impaired, service will be provided over a different transponder, either on the same spacecraft or a different spacecraft. Failure of a transponder or spacecraft, even for a short time, leads to a “daisy chain” effect. Customers with protected service have their communications restored, thereby displacing customers who have agreed to take pre-emptible service. These customers in turn must attempt to find alternate capacity. It is simply impossible

in advance of a malfunction to predict what frequencies will need to be used at any given earth station whose customers are affected by the failure.¹⁴

For example, when Galaxy IV failed without warning in 1998, PanAmSat needed to take a variety of actions to restore service to customers. In the short term, some customers of Galaxy IV were provided service on other nearby PanAmSat spacecraft. Within a few days after the failure, PanAmSat began moving the C-band Galaxy VI satellite from 74° W.L. to 99° W.L., where Galaxy IV had been positioned. Galaxy VI arrived at that location and was available for service to C-band customers of Galaxy IV within a week after the Galaxy IV failure. Each of the actions taken to implement this contingency plan required the ability to shift frequencies on which customer services were provided as needed to accommodate changes in spacecraft assignments and adjust to different satellite frequency plans.

¹⁴ HBO explained that:

HBO, like many other programming networks, has elaborate arrangements in place with its satellite capacity suppliers to restore services immediately in the event of interruption to any one of HBO's network distribution feeds. If it became necessary to implement these plans, HBO could be required to repoint antennas to different satellites and/or change to frequencies (that may not be known until the interruption event occurs) within minutes. The prospect of having to conduct a frequency coordination or to seek a modification of license under these circumstances simply would be unacceptable.

HBO Opposition at 5.

The architecture of satellite systems is also fundamentally different from that of terrestrial systems. Any earth station can generally communicate with any other earth station in the band that is within the footprint of the satellite. As a result, satellite services are particularly suitable for handling spikes in demand for telecommunications services resulting from breaking news or other short-term events. In contrast, point-to-point terrestrial links are less suitable for such events, and are therefore less likely to have sudden short-term increases in demand.¹⁶ Obviously, such events are unpredictable, and in order to respond, earth station operators need the ability to use any available frequencies to provide coverage.

Finally, flexibility is important to the efficient management of the satellite network. The FWCC Petition takes a narrow view, focusing on earth segment without acknowledging that the rules for earth stations are designed based on how they interact with space stations. As discussed above, licensing rules for spacecraft already ensure maximum efficient use of the spectrum/orbital resources. Flexibility on the ground segment side is necessary to permit full utilization of satellite resources in response to customer demand and to optimize traffic on the satellite network as customer requirements evolve.

For example, shifting frequencies used by existing customers may make it possible to accommodate a new service. As COMSAT explained in its

¹⁶ See Reply and Opposition of MCI WorldCom, Inc. at 3 (FS terrestrial stations do not require access to the full band because there is rarely any increase in demand that requires the use of additional spectrum).

¹⁷ See, e.g., Opposition of Sprint Corporation at 2-4; Reply and Opposition of MCI WorldCom, Inc. at 3.

Opposition to the FWCC Petition, it had recently been able to make an entire transponder on an INTELSAT satellite available for one of its largest customers, but only by an extensive relocation of nearly 35 carriers over a period of a few weeks.¹⁸

C. The Record Contains No Evidence that Current Policies Unfairly Disadvantage Terrestrial Operators

In contrast to the strong evidence in the record regarding the need for flexibility for satellite operations, there is absolutely no concrete information supporting the changes requested by the FWCC. In fact, it is worth noting that not a single terrestrial operator filed comments in support of the FWCC Petition. Conversely, among the opponents of the petition were service providers who rely on both satellite and terrestrial facilities to provide communications services.¹⁹ These entities, who are clearly in a position to evaluate sharing from the perspective of both terrestrial and satellite operations, expressly confirmed that the balance represented by the current rules is appropriate. MCI WorldCom, for example, flatly stated that “satellite operators and FS operators are on a level playing field with regard to coordination.”²⁰

Instead of providing direct evidence of a problem with existing policies, the FWCC Petition relied solely on speculation and generalized complaints

¹⁸ Opposition of Comsat Corporation at 20.

¹⁹ See, e.g., Opposition of Sprint Corporation, Reply and Opposition of MCI WorldCom, Inc.

²⁰ Reply and Opposition of MCI WorldCom, Inc. at 4. See also Reply Comments of ATC Teleports, Inc. at 2.

regarding increased demand for terrestrial services and allegations of spectrum shortages. See FWCC Petition at 8. Yet even here the FWCC tells only part of the story. The FWCC ignores the fact that terrestrial services have access to thousands of megahertz of spectrum that is not shared with satellite services. For example, Section 101.101 of the Commission's rules identifies more than 7.4 GHz of spectrum available for fixed service operations that is not shared with satellite services. If a terrestrial applicant cannot successfully coordinate a new path with existing earth stations, it can seek to use different shared frequencies or unshared frequencies instead.

The FWCC also ignores the fact that terrestrial operators have traditionally benefited disproportionately from Commission sharing policies, which are based on a first-come, first-served framework. Terrestrial operations in many of the shared bands were in place well before satellite services began, so that even the first earth stations had to work around existing fixed service links in order to find suitable sites.²¹ Earth station applicants are further limited by the requirement

²¹ In its 1970 decision establishing commercial domestic satellite services, the Commission noted that:

[T]here is some doubt as to whether domestic satellite operations can be fully and economically accommodated in the only frequency bands presently available for commercial domestic satellite communications services, *i.e.* the 4 and 6 GHz bands. It seems desirable from the standpoint of economics that earth stations be located as close as possible to population centers to avoid dissipating any savings in long terrestrial interconnections. Terrestrial use has substantially saturated the 4 and 6 GHz bands near several population centers throughout the United States and quite generally in the North-eastern states.